

AP Diffusion & Osmosis Lab

PROCEDURE 1 – p.S56

Perform “step 2” procedures: Cut 3 gel cubes ranging from 5x5x5mm to 20x20x20mm. Calculate SA & Volume. **Predict** order of diffusion rate. Time the diffusion rates & record the results in a data table. Conclude if your predictions were correct.

PROCEDURE 2 – p. S58 – S59 Work with a partner & share results.

Peel a single layer of red onion, place on microscope slide. Focus with microscope to see cells clearly; record initial observations. One partner uses a pipette to put NaCl on slide, then use paper towel to draw liquid through cells. Observe the cells **as you are doing this** and record observations. Other partner does same procedures but uses plain water.

Describe **what** happened and **why** using the following vocabulary (isotonic, hypotonic, hypertonic, water potential, osmosis, plasmolysis, turgor-pressure, cell wall)

All work above should be submitted (**not** in a report format) by the due date specified.

INDEPENDENT INVESTIGATION

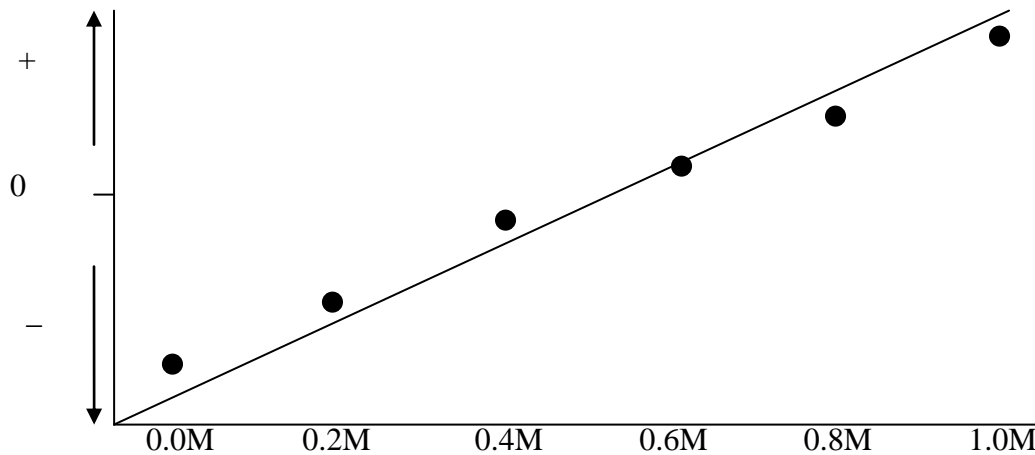
You will choose one of the following plant samples and figure out **what the *relative concentration*** is in that plant material.

Carrot Sweet Potato Red-Skin Potato Brown-Skin Potato

To assist you, there will be the following solutions:

Pure water 0.2M sucrose 0.4M sucrose 0.6M sucrose 0.8M sucrose 1.0M sucrose

1. Cut several samples (4-6) of equal size. Make sure no skin is on them. Weigh each sample set together & record mass.
2. Place the sample sets into cups, one with each of the 6 solutions. Record time. Wait for 30-40min.
3. Remove samples from solutions. Blot dry with paper towel. Weigh & record mass.
4. Plot your data on a graph like the one below that will provide you with a trend line.



LAB REPORT:

Report ONLY on your independent investigation.

Title: Appropriate to your plant & experiment

Introduction: Background on osmosis in plants & how this is significant to their biology. A *general* hypothesis about the expected trend (If the plant is placed in solutions ranging from 0M to 1.0M, then the plant should ____ in mass.)

Methods: 3rd-person, past tense, all procedures as you did them.

Results: Data table & graph, appropriately titled, labeled, correct units, etc. Summarize the results.

Discussion: Analyze your data and explain why the results occurred and what they mean. How do the results refute or support your hypothesis? Experimental errors should be discussed. Explain why your general conclusions would be important for real-world people/industries to know about (see the questions on p.S56, procedure 2, about knowing solute concentrations in patients before trying to hydrate them with IV solutions).